Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_

**Periodic Table Webquest**

Part I: **“Major Players”**

Go to <http://allperiodictables.com/ClientPages/AAEpages/aaeHistory.html>

|  |  |
| --- | --- |
| Scientist | Contribution to the development of the periodic table |
| Greek thinkers |  |
| Lavoisier |  |
| John Dalton |  |
| Mendeleev |  |
| Ramsey |  |
| Moseley |  |
| Seaborg |  |

Part II: **“Get Organized Periodically”** Go to

<http://www.chem4kids.com/files/elem_pertable.html>

1. Why are the elements placed in specific places on the Periodic Table?
2. Periods are \_\_\_\_\_\_\_\_ that run from left to right.
3. Elements in the same period have the same \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
4. Every element in the first period has \_\_\_\_\_\_\_\_ shell for its \_\_\_\_\_\_\_\_\_\_. Every element in the second period has \_\_\_\_\_\_\_\_\_\_ for its \_\_\_\_\_\_\_\_\_\_\_. See the pattern?
5. Groups are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that run from top to bottom.
6. The elements of a group have the same number of \_\_\_\_\_\_\_\_\_\_\_\_ in their \_\_\_\_\_\_\_\_\_\_\_ shell.
7. Every element in group one has \_\_\_\_\_\_\_\_\_ electron in its outer shell. Every element in group two has \_\_\_\_\_\_\_\_\_\_\_ electrons in its outer shell.
8. Hydrogen is special because it can act like two groups, \_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_.
9. Hydrogen sometimes is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ an electron and sometimes it has an \_\_\_\_\_\_\_\_\_\_\_\_\_ electron.
10. Although helium has only \_\_\_\_\_\_\_\_\_\_ electrons in its outer shell, it is grouped with elements that have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
11. The green elements on this table are called \_\_\_\_\_\_\_\_\_\_\_\_ elements. They each have two electrons in their outer shell.

Part III: **“Family Fun”** Go to [http.//chemicalelements.com/](http://www.chemicalelements.com)

1. **Click on Alkali Metals** (left bar) and answer the following questions.
2. What is the group number? \_\_\_\_\_\_\_\_\_\_
3. Are these metals reactive? \_\_\_\_\_\_\_\_\_\_
4. Do these metals occur freely in nature? \_\_\_\_\_\_\_\_\_\_
5. How many electrons are in their outer shell? \_\_\_\_\_\_\_\_\_\_\_
6. What are the three characteristics of ALL metals? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. Are these metals soft or hard? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. Name the two most reactive elements in this group? \_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_
9. What happens when they are exposed to water? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
10. **Click on Alkaline Earth Metals** (left bar) and answer these questions.
11. What is the group number? \_\_\_\_\_\_\_\_\_\_
12. Are these metals reactive? \_\_\_\_\_\_\_\_\_\_
13. Do these metals occur freely in nature? \_\_\_\_\_\_\_\_\_\_\_\_
14. How many electrons are in their outer shell? \_\_\_\_\_\_\_\_\_ (Hint: It’s the same as their oxidation number or group number.)

Watch: <http://www.youtube.com/watch?v=DFQPnHkQlZM>

How are Alkaline Earth Metals different from Alkali Metals?

Why are neither found in nature by themselves?

1. **Click on Transition Metals** (left bar) and answer these questions.
2. How many elements are in this group? \_\_\_\_\_\_\_\_\_\_\_\_
3. What are the group numbers? \_\_\_\_\_\_\_\_\_\_ through \_\_\_\_\_\_\_
4. What are valence electrons? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. Because the valence electrons are present in more than one \_\_\_\_\_\_\_\_\_\_\_\_\_ transition metals often exhibit several common \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
6. Name the three elements in this family that produce a magnetic field. \_\_\_\_\_\_\_\_\_,

\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_.

Watch: <http://www.youtube.com/watch?v=c6erqTanHN4>

What are these metals most known for?

1. **Click on Other Metals** (left bar) and answer these questions.
2. How many elements are in this group? \_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. What are the group numbers? \_\_\_\_\_\_\_\_\_ through \_\_\_\_\_\_\_\_\_\_
4. How are these other metals similar to the transition metals? \_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. How are these metals different than the transition metals? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. List three physical properties of these other metals. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Watch: <http://www.youtube.com/watch?v=AOpGhAdQFEY>

Why is aluminum so easily recycled (what physical property?)

How quickly can a can be melted and repackaged as a new can?

1. **Click on Metalloids** to answer these questions**.**
2. On your periodic table, draw the black stair-step line that distinguishes metals from nonmetals.
3. Metalloids have properties of both \_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_.
4. Define semiconductor \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
5. Name two metalloids that are semi-conductors. \_\_\_\_\_\_\_\_\_\_\_\_and \_\_\_\_\_\_\_\_\_\_.
6. This property makes metalloids useful in \_\_\_\_\_\_\_\_\_\_\_\_and \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
7. **Click in Nonmetals** to answer these questions**.**
   1. What are the group numbers? \_\_\_\_\_\_\_\_\_\_\_ through \_\_\_\_\_\_\_\_\_\_\_\_
   2. List four characteristics of ALL nonmetals. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   3. What two states of matter do nonmetals exist in at room temperature? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   4. The nonmetals have no \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_and do not \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
   5. What are the oxidation numbers of the nonmetals? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. **Click on the Halogens** (left bar) to answer these questions**.**
   1. What is the halogen group number? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. Are halogens metals or nonmetals? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   3. The term “halogen” means \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and compounds containing halogens are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
   4. How many electrons are in their outer shell? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   5. What is their oxidation number? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   6. What states of matter do halogens exist in at room temperature? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
9. **Click on Noble Gases** (left bar) and answer these questions**.**
   1. What is the group number? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. Why were these gases considered to be inert or stable? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Watch the video <http://www.youtube.com/watch?v=nrHVOFG2V-c>

How much argon do you breathe in each breath?

How reactive is argon?

1. **Click on Rare Earth Elements (Inner Transition)** (left bar) and answer thesequestions.
   1. How many Rare Earth elements are there? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. Define trans-uranium. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   3. The Rare Earth metals are found in group \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_and periods \_\_\_\_\_\_\_\_\_\_\_\_\_\_and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.